

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Self Initiated Inspection

B201535021

FACILITY: Metal Technologies, Inc. Three Rivers Gray Iron		SRN / ID: B2015
LOCATION: 429 Fourth Street, THREE RIVERS		DISTRICT: Kalamazoo
CITY: THREE RIVERS		COUNTY: SAINT JOSEPH
CONTACT: Dan Plant , Corporate Environmental Manager		ACTIVITY DATE: 06/14/2016
STAFF: Rex Lane	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Self Initiated Inspection		
RESOLVED COMPLAINTS:		

On June 14, 2016, AQD staff (Rex Lane and Amanda Chapel) conducted an unannounced air quality inspection of Metal Technologies, Inc. (MTI), Three Rivers Gray (TRG) Iron facility located at 429 Fourth Street, Three Rivers, Michigan. The purpose of the inspection was to determine the facility's compliance with Renewable Operating Permit (ROP) MI-ROP-B2015-2013c and all applicable state and federal air regulations. Required PPE includes a hard hat, steel toed boots, safety glasses and hearing protection. The following will summarize plant operations and facility compliance status based on pre-inspection review, inspection observations or post-inspection review.

Staff arrived at the facility at 9:30 a.m. and gave the receptionist a business card, stated the purpose of the visit and requested that they contact Mr. Tim Lawson, maintenance supervisor. Mr. Lawson came up shortly thereafter and we went to a conference room and staff provided him with MDEQ's Environmental Inspections brochure, business cards and asked a few general questions about the facility. MTI purchased the facility from Dock Foundry in 1999 and has about 150 employees. They typically operate three 8-hour shifts per day, six days per week. The gray and ductile iron foundry manufactures parts for the automotive sector and also for the small engine, construction and appliance industries. The facility is considered to be a major source for carbon monoxide (CO), particulate matter (PM), hazardous air pollutants (HAPs) and volatile organic compound (VOC) emissions. Greenhouse gas emissions from the facility were calculated to be < 100,000 tons CO<sub>2</sub>e. Mr. Lawson then gave staff a tour of the facility.

#### Source-Wide Conditions:

The permittee is required to develop and implement a written operation and maintenance (O&M) plan, a startup, shutdown and malfunction (SSM) plan and for each segregated scrap storage area, comply with either scrap certification requirements or implement a plan for the selection and inspection of scrap per 40 CFR Part 63, Subpart EEEEE. The facility file contains revised O & M and SSM plans and a scrap certification plan dated February 2013.

Staff contacted Mr. Dan Plant, MTI Corporate Environmental Manager, following the inspection to determine if these plans are current or have been revised. Mr. Plant sent staff a January 2016 version of these plans via email and the document is attached to this activity report. MTI is using a Scrap Certification Program per 40 CFR Part 63.7700(b) for purchase and use only of metal ingots, pig iron, slitter, or other materials that do not include post-consumer automotive body scrap, post-consumer engine blocks, post-consumer oil filters, oily turnings, lead components, mercury switches, plastics or free organic liquids. Staff went into the scrap bay during the inspection and observed metal chips, uncoated stampings and internal foundry returns (i.e. off-spec castings, sprues, etc.). Staff did not observed any liquids draining out of the metal chips so it appears that the facility is in compliance with 40 CFR Part 63.7700(b).

On a semi-annual basis, the permittee is required to perform and records the results of a six minute visible emission (VE) check from building or structures per Method 9 procedures. Following the inspection, staff requested and obtained from Mr. Plant copies of the two most recent Method 9 VE observations which were conducted on 9/30/15 and 3/15/16. A review of the VE results indicates compliance with the 20% opacity limit in 40 CFR 63.7690(a)(7).

#### EUSHAKEOUT:

Process separates iron castings from sand molds and transfers castings to the cleaning area, sprues to the scrap bay and sand back to the sand system. Process is controlled by the reverse air 2014 North Dustar baghouse (tool # 38939).

Condition I.1 – PM emission limit is 0.04 lb./1000 lb. exhaust gas. Facility tested process in February 2015 and the emission rate was 0.006 lb./1000 lb. exhaust gas.

I.2 – PM emission limit is 11.9 pounds/hour. Facility tested process in February 2015 and the emission rate was 1.72 pounds/hour.

I.3 - Opacity limit is 5% on a six minute average. Method 9 observations conducted of North Dustar baghouse on 9/30/15 and 3/15/16 were each zero opacity.

IV.1 – Facility has equipped and maintained a pressure drop gauge on the baghouse. During the inspection, the baghouse differential pressure was 4.57”.

V1.1 – Facility is required to perform daily check for visible emissions and record the results in the maintenance log. Travis, 2<sup>nd</sup> shift maintenance supervisor provided staff with daily stack emission log records for all dust collectors. A sample report for the week prior to the air quality inspection is attached to this report. The report was revised following the 2014 air quality inspection of the facility. If any visible emissions are noted, a preventative maintenance (PM) work order is issued for the dust collector in question (i.e. see form comments on East, West and North Fuller baghouses).

VI.2 – Facility is recording the daily pressure drop readings for each control device on a common log sheet for each baghouse by tool number.

VI.3 – Facility has implemented a preventative maintenance program for the baghouses which is included in the O & M plan revisions that are dated January 2016.

VI.4 – Staff reviewed records of quarterly inspection and fluorescent dye checks for each baghouse (sample report attached). The quarterly inspection logs note whether any bags were replaced and their location(s) inside the control device along with any other maintenance activities that were performed. In general, the baghouses are checked by maintenance with visolite powder on a monthly basis.

#### EUCORE5:

This shell core machine has not been operated since March 2014 and per the facility it is unlikely to be put back into operation for the foreseeable future. Monthly shell core usage rate records are available from June 2010 through March 2014. Since the equipment has not operated in over two years, staff did not evaluate permit conditions associated with EUCORE5 during this inspection.

#### EUEMERGEN:

The emission unit is a diesel fired emergency generator that is subject to 40 CFR Part 63, Subpart ZZZZ (existing CI RICE) based on its installation date. The generator is equipped with a non-resettable hour meter. The current meter reading is 532.7 hours and has only operated 77.2 hours in the last two years. Readiness testing is done automatically once per week for 10 – 15 minutes. Process is only capable of providing power to equipment in FGGRAYIRON in the event of a power outage. Maintenance on EUEMERGEN is contracted to an outside vendor, Total Energy Systems, Inc. and is performed once every six months.

#### FGGRAYIRON:

This flexible group includes metal pre-heating (EUVANETTA), charge loading, melting and pouring activities. Process emissions are controlled by the South Fuller and small Dustar (# 38906) baghouses that share a common draft fan and stack. The stack is equipped with a broken bag detector and the monitor readout (4% during records review) is located in the maintenance building that also displays instantaneous pressure drop readings for all baghouses. During the inspection, the South Fuller baghouse had a pressure drop of 2.76" and the small Dustar pressure drop was 1.98". All four electric induction furnaces were in operation during the inspection. Furnace operating temperatures ranged between 2730 and 2775 degrees F. Staff observed a 5,000 pound tap and charge to Furnace No. 1. Furnace operation is staggered because power consumption limitations prevent melting in all furnaces simultaneously. There are five general ventilation roof fans in the vicinity of the furnaces and pouring area. Staff went on the roof and did a brief observation of the roof vents while it was raining and no visible emissions were noted. These vents are subject to a 20% opacity limit under Rule 301.

I.1 – PM emission limit is 0.01 lb./1000 lb. exhaust gas. Facility tested process in November 2002 and the emission rate was 0.002 lb./1000 lb. exhaust gas.

I.2 – PM emission limit is 1.7 pounds/hour. Facility tested process in November 2002 and the emission rate was 0.26 pounds/hour.

I.3 – Process is subject to either a PM emission limit of 0.005 grains/dscf or a Total Metal HAP limit of 0.0004 grains/dscf. Under Condition V.1, not later than 10/19/2017 the permittee will be required to conduct a performance test to demonstrate compliance with the emission limits in Condition I.1 through I.3.

II.1 – Process is limited to an iron melt of 219,000 tons/year on a 12-month rolling time period basis. Based on monthly production records (attached) reviewed by staff, the facility has averaged around 80% of the limit over the past twelve months.

II.2 – Facility currently has a scrap certification plan so this condition is not applicable at this time. During inspection of the scrap bay, staff did not see any plastic material or post-consumer automotive material. The bulk of material in the scrap bay consisted of clean stampings, metal chips that did not appear to contain free organic liquids and internal foundry returns.

III.1 – Facility has certified that EUVANETTA is operated and maintained such that flame directly contacts charged scrap. Mr. Lawson gave staff a flashlight to look into the emission unit and staff verified during pre-heater operation that the flames were in direct contact with the charged scrap.

VI.1 – Facility is maintaining monthly records of iron weight processed in FGGRAYIRON.

V1.2 – Facility is conducting daily visible observations of the baghouse stack as part of the

PM work activities. No visible emissions were noted from SV84-951 during the inspection.

VI.3 – Facility is recording the daily pressure drop readings for each control device.

VI.4 – Facility has implemented a preventative maintenance program for the baghouses which is included in the O & M plan revisions that are dated January 2016.

VI.5 – Staff reviewed records of quarterly inspection and fluorescent dye checks for each baghouse. The quarterly inspection logs note whether any bags were replaced and their location(s) inside the control device along with any other maintenance activities that were performed.

VI.6 – Facility has installed bag leak detection (BLD) system on the common stack serving the two baghouses. The readout is located in the maintenance building and readout is in percent of scale. During the inspection, the BLD readout was around 4%. Staff asked what % of scale range triggers the audible alarm located by the scrap bay and was informed that it goes off if 50% of range is detected for more than four seconds.

IX.1 – Mr. Plant emailed to staff the January 2016 updates to the O & M plan.

#### FGMOLDCOOLING:

There are four mold cooling lines under this flexible group. All four DISAs and associated mold cooling lines were in operation during the inspection. Mold lines # 3 and # 4 were running cored molds. Mold production rates ranged between 254 and 322 molds/hour. Staff observed that the molds appeared to be self-igniting during the inspection. Staff went on the roof to observe the mold cooling stacks and no visible emissions were noted during the brief observation. During the scheduled maintenance shutdown in early July 2016, the in-mold cooling period will be extended on mold cooling lines # 3 and # 4 to improve casting quality and have a similar configuration as lines # 1 and # 2. Refer to fall 2015 email correspondence in the facility file for further information on this project.

I.1 – PM emission limit is 0.10 lb./1000 lb. exhaust gas. Facility tested process in June 2013 and the emission rate ranged between 0.0040 and 0.0093 lb./1000 lb. exhaust gas.

V.1 – Facility will be required to conduct a performance test for PM prior to the expiration of the ROP (10/17/2018).

VI.1 – Facility is conducting and recording daily non-certified visible emission checks.

#### EGEWFULLER:

Sand handling and casting transfer operations. Process is controlled by the east (# 38904) and west (# 38905) fuller baghouse.

I.1 – PM emission limit is 0.04 lb./1000 lb. exhaust gas. Facility tested process in June 2013 and the emission rate was 0.0040 lb./1000 lb. exhaust gas.

I.2 – PM emission limit is 15.8 pounds/hour. Facility tested process in June 2013 and the emission rate was 1.01 pounds/hour.

I.3 - Opacity limit is 5% on a six minute average. Facility conducted Method 9 observation in June 2013 and opacity was less than 5%. Staff briefly observed stack SV1152-913 during the inspection and no visible emissions were noted.

IV.1 – Facility has equipped the east and west fullers with pressure drop gauges. During the inspection, the east and west fuller baghouse pressure drop readings were 4.42" and 5.18", respectively.

V.1 - Facility will be required to conduct a performance test for PM prior to the expiration of the ROP (10/17/2018).

V1.1 –Facility is conducting and recording daily visible observations of the baghouse stack.

VI.2 – Facility is recording the daily pressure drop readings for each control device.

VI.3 – Facility has implemented a preventative maintenance program for the baghouses which is included in the O & M plan revisions dated January 2016.

VI.4 – Staff reviewed records of quarterly inspection and fluorescent dye checks for each baghouse. The quarterly inspection logs note whether any bags were replaced and their location(s) inside the control device along with any other maintenance activities that were performed.

#### FGWDUSTAR:

Process consists of casting accumulator, cast transfer and sand screens. The process is controlled by west dustar baghouse (# 38942). During the scheduled maintenance shutdown in early July 2016, the didion drum will be replaced with a like-for-like unit as a part of routine equipment replacement. The facility submitted a project demonstration that there will be no increase in production capabilities or emissions associated with drum replacement nor does the project result in a modification or reconstruction of the emission unit. Refer to fall 2015 email correspondence in the facility file for further information on this project.

I.1 – PM emission limit is 13.5 pounds/hour. Facility tested process in June 2013 and the emission rate was 5.64 pounds/hour.

I.2 – PM emission limit is 0.02 lb./1000 lb. exhaust gas. Facility tested process in June 2013 and the emission rate was 0.011 lb./1000 lb. exhaust gas.

I.3 - Opacity limit is 5% on a six minute average. Facility conducted Method 9 observation in June 2013 and opacity was less than 5%. Staff briefly observed stack SV565-932 during the inspection and no visible emissions were noted.

IV.1 – Facility has equipped the west dustar baghouse with a pressure drop gauge. During the inspection, the gauge reading was 4.16".

V.1 - Facility will be required to conduct a performance test for PM prior to the expiration of the ROP (10/17/2018).

V1.1 –Facility is conducting and recording daily visible observations of the baghouse stacks as part of the PM work activities.

VI.2 – Facility is recording the daily pressure drop readings for each control device.

VI.3 – Facility has implemented a preventative maintenance program for the baghouses which is included in the O & M plan revisions dated January 2016.

VI.4 – Staff reviewed records of quarterly inspection and fluorescent dye checks for each baghouse. The quarterly inspection logs note whether any bags were replaced and their location(s) inside the control device along with any other maintenance activities that were

performed.

#### FGCLEANING:

Iron castings are cleaned in one of four shotblast machines and/or one of seven stand grinders. The process is controlled by the north fuller baghouse (# 38903). Due to the abrasive nature of this process, the facility changes out the bags in the north fuller baghouse on an annual basis.

I.1 – PM emission limit is 0.02 lb./1000 lb. exhaust gas. Facility tested process in June 2013 and the emission rate was 0.011 lb./1000 lb. exhaust gas.

V.1 - Facility will be required to conduct a performance test for PM prior to the expiration of the ROP (10/17/2018).

VI.1 –Facility is conducting and recording daily visible observations of the baghouse stacks.

VI.2 – Facility is recording the daily pressure drop readings for each control device.

VI.3 – Facility has implemented a preventative maintenance program for the baghouses which is included in the O & M plan revisions dated January 2016.

VI.4 – Staff reviewed records of quarterly inspection and fluorescent dye checks for each baghouse. The quarterly inspection logs note whether any bags were replaced and their location(s) inside the control device along with any other maintenance activities that were performed.

#### FGCOREMAKE:

Cold box core machines with individual packed bed acid scrubbers for control. This process has not operated since April 2013 and cores used at the facility are purchased from another facility. Staff did not evaluate compliance with permit conditions under this flexible group since it hasn't been in operation for over three years. The ROP was amended to change the emission testing requirement to "not later than 180 days after startup" of the core making equipment.

#### FGCAM UNITS:

EUSHAKEOUT, FGGRAYIRON, FGEWFULLER, FGWDUSTAR and FGCLEANING are subject to CAM regulations.

III.1 – Facility has a malfunction abatement plan that was submitted in February 2013 and was revised January 2016.

VI.1 – The facility is recording daily visible emission checks.

VI.2 – The facility is recording daily pressure drop readings on baghouses associated with the above equipment.

VI.3 – Staff reviewed the 2015 ROP certification reports and associated CAM excursion/exceedance and monitor downtime reports for FGCAM\_UNITS. In 2015, the facility reported two events where differential pressure baghouse readings were out of range but no

visible emissions were observed during this time period. The facility also reported sporadic to one day durations in January through March 2015 where differential pressure tap lines froze up on the 2014 north Dostar. The facility has since relocated the tap lines to be less susceptible to moisture buildup. The facility also reported two visible emission events in 2015 associated with the north Fuller and west Dostar baghouses that were less than one day in duration. The facility black lighted both baghouses and replaced a total of seven bags and differential pressures were within limits during this period. A violation notice was not sent since the facility initiated prompt corrective measures.

At the time of the inspection and based on a review of records received during and following the inspection, it appears that the facility is in compliance with all terms and conditions of MI-ROP-B2015-2013c and applicable state and federal air regulations. -RIL

NAME RIL

DATE 6/20/16

SUPERVISOR MB 6/20/2016